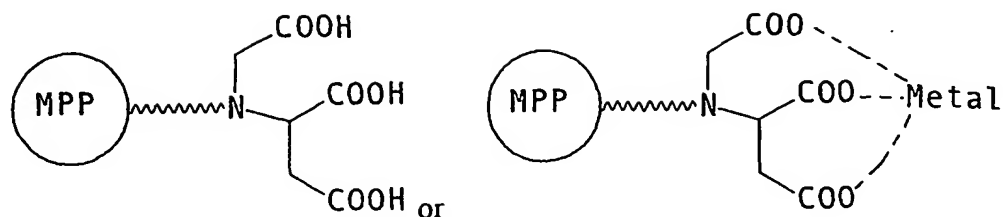


Claims

1. A conjugate comprising a magnetic polymer particle bound to a carboxymethylated aspartate chelating ligand.
5
2. A conjugate comprising a magnetic polymer particle bound to a carboxymethylated aspartate ligand chelating a metal atom or ion.
- 10 3. A conjugate as claimed in claim 2 wherein said metal is a transition metal or a metal of group 13.
4. A conjugate as claimed in claim 3 wherein said metal is Ni, Fe, Ga, Mn, Co, Cu and Zn.
15
5. A conjugate as claimed in claim 4 wherein said metal is Fe, Ga, Mn and Co.
6. A conjugate as claimed in claim 2 to 5 wherein said
20 metal is in the 2+ or 3+ oxidation state.
7. A conjugate as claimed in claim 6 wherein said metal is Co^{2+} , Fe^{3+} , Ga^{3+} and Cu^{2+} .
- 25 8. A conjugate as claimed in claim 7 wherein said metal is Co^{2+} .
9. A conjugate as claimed in any one of claims 1 to 8 wherein there are at least three atoms between the
30 nitrogen atom of the carboxymethylated aspartate ligand and the particle surface.
10. A conjugate as claimed in claim 9 being of formula



(MPP=magnetic polymer particle)

wherein the wavy line represents a 3 to 20 atom linker selected from NH-alkylene, NH-CO-alkylene, O-alkylene, OCO-alkylene, S-alkylene or SCO-alkylene.

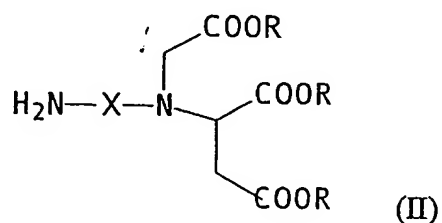
11. A conjugate as claimed in claim 10 wherein the wavy line represents $\text{NH-C}_5\text{H}_{12}-$ or $\text{NH-C}_6\text{H}_{13}-$.
12. A conjugate as claimed in any one of claims 1 to 11 wherein said polymer comprises a cross-linked styrene divinyl benzene polymer.
13. A conjugate as claimed in any one of claims 1 to 12 wherein the magnetic polymer particle has a diameter of 0.5 to 8 μm .
14. A conjugate as claimed in claim 12 wherein said magnetic polymer particle has a diameter of 0.8 to 1.2 μm .
15. A conjugate as claimed in any one of claims 1 to 14 being uncharged.
16. A conjugate as claimed in any one of claims 2 to 15 additionally chelated to a histidine tagged recombinant protein/peptide, His, Cys, Met, Gln, Asn, Lys and/or Tyr residue containing native protein/peptide or phosphorylated protein/peptide.
17. A conjugate as claimed in any one of claims 2 to 16 additionally chelated to a histidine tagged recombinant protein/peptide.

18. A conjugate as claimed in claim 16 characterised in that where said conjugate binds a phosphorylated protein/peptide, said metal is Fe or Ga.

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19. A process for the preparation of a conjugate comprising a magnetic polymer particle bound to a Cm-Asp ligand comprising reacting a Cm-Asp ligand of formula (II)

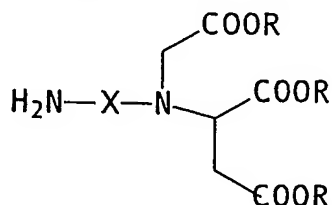
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(wherein each R independently represents hydrogen or a protecting group and X represents a 2 to 20 atom group) with a magnetic polymer particle, and optionally coordinating the resulting conjugate to a metal atom or ion.

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20. A compound of formula (II)



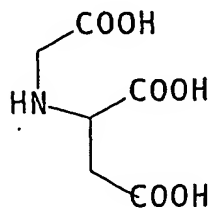
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(wherein each R independently represents hydrogen or a protecting group and X represents a 2 to 20 atom group) or an analogue therefore in which the R groups are absent and a metal chelated.

25

21. A compound as claimed in claim 20 wherein X is a C5 or C6-alkylene group.

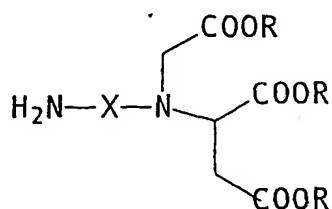
22. A compound of formula (III) or an analogue thereof in which a metal is chelated



(III)

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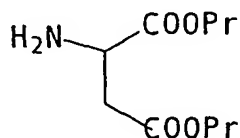
23. A process for the preparation of a compound of formula



10 (wherein each R independently represents hydrogen or a protecting group and X represents an C_{2-20} alkylene linker);

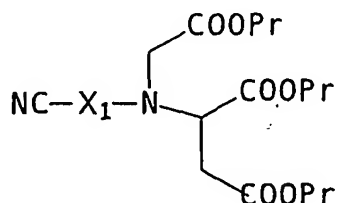
comprising reacting a compound of formula $Hal-X_1-CN$ (wherein Hal is a halide and X_1 represents an C_{1-19}

15 alkylene linker) with a compound of formula



(wherein Pr is a protecting group)

20 reacting the resulting product with a compound of formula $Hal-CH_2COOPr$ to form a compound



reducing the nitrile to an amino group; and optionally deprotecting the carboxyl groups.

5 25. Use of a conjugate as claimed in any one of claims 2 to 18 in an assay.

26. Use of a conjugate as claimed in any one of claims 2 to 18 in the purification of histidine tagged
10 recombinant proteins/peptides, His, Cys, Met, Gln, Asn, Lys and/or Tyr residue containing native proteins/peptides or phosphorylated proteins/peptides.